United States Patent [19]

Sanders

[11] **4,069,688**

[45] **Jan. 24, 1978**

[54] CIRCULAR KNITTING MACHINE DEVICE

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[73] Assignee: **Milliken, Research Corporation,** Spartanburg, S.C.

[21] Appl. No.: **749,389**

[22] Filed: **Dec. 10, 1976**

[51] **Int. Cl.**[2] **D04B 37/02;** D04B 15/88

[52] **U.S. Cl.** ..... **66/1 R;** 66/151; 33/172 D

[58] **Field of Search** ..... 33/169 C, 172 R, 172 D, 33/174 Q; 66/1 R, 151, 149 R

[56] **References Cited**

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2,013,563	9/1935	Lawson et al.	66/149 R X
3,432,932	3/1969	Oellerich	33/169 C X
3,822,478	7/1974	Aly et al.	33/172 D
3,985,001	10/1976	Eschenbach	66/151 X

Primary Examiner—Wm. Carter Reynolds
Attorney, Agent, or Firm—Earle R. Marden; H. William Petry

[57] **ABSTRACT**

A centering and truing device to accurately indicate the position of the baseplate of a large roll take-up mechanism for a circular knitting device. A three-dimensional slider mechanism is suspended from the knitting machine cylinder ledge and the centering member suspended therefrom is adjusted to indicate the position of the knitting machine baseplate.

5 Claims, 6 Drawing Figures

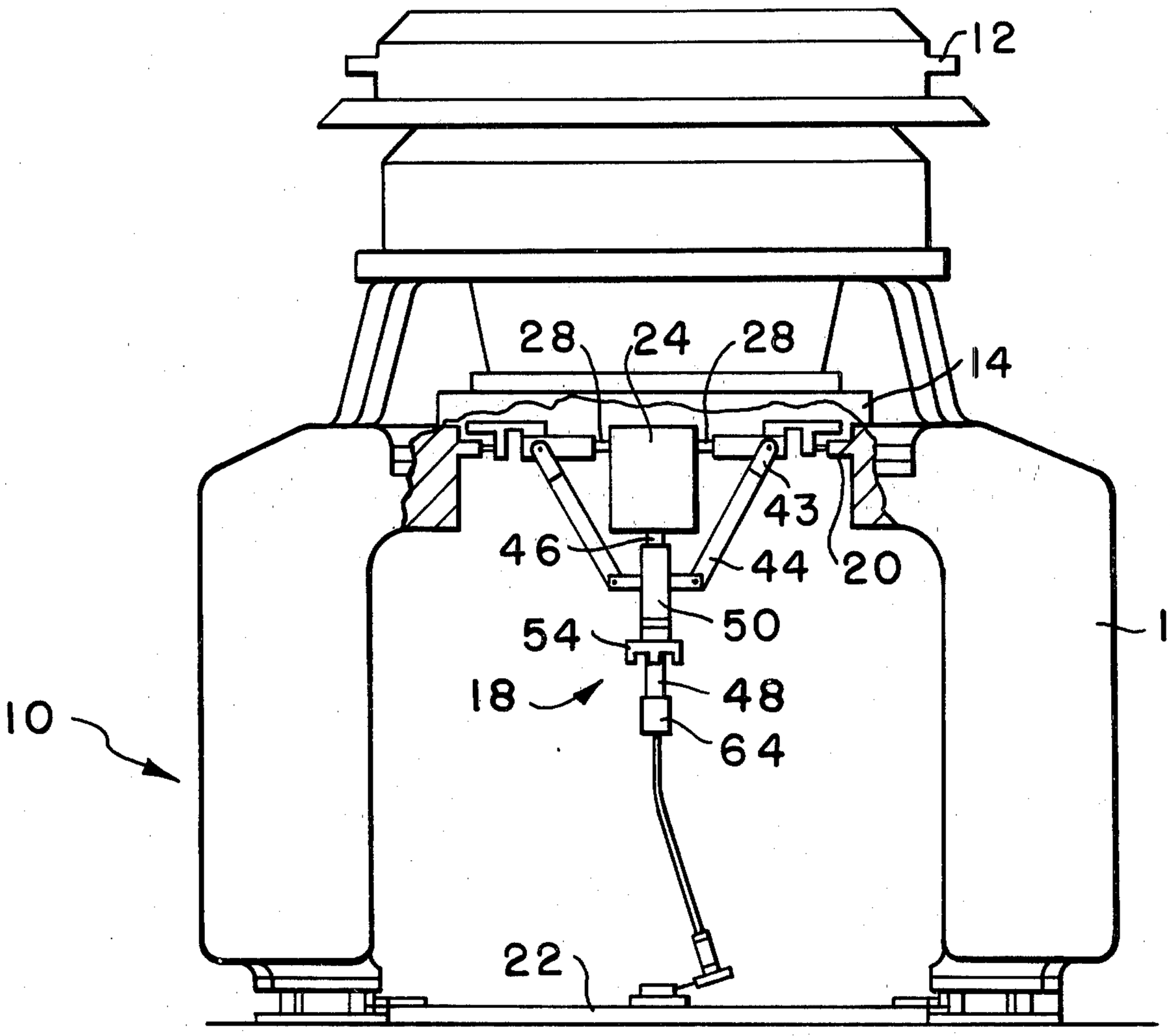
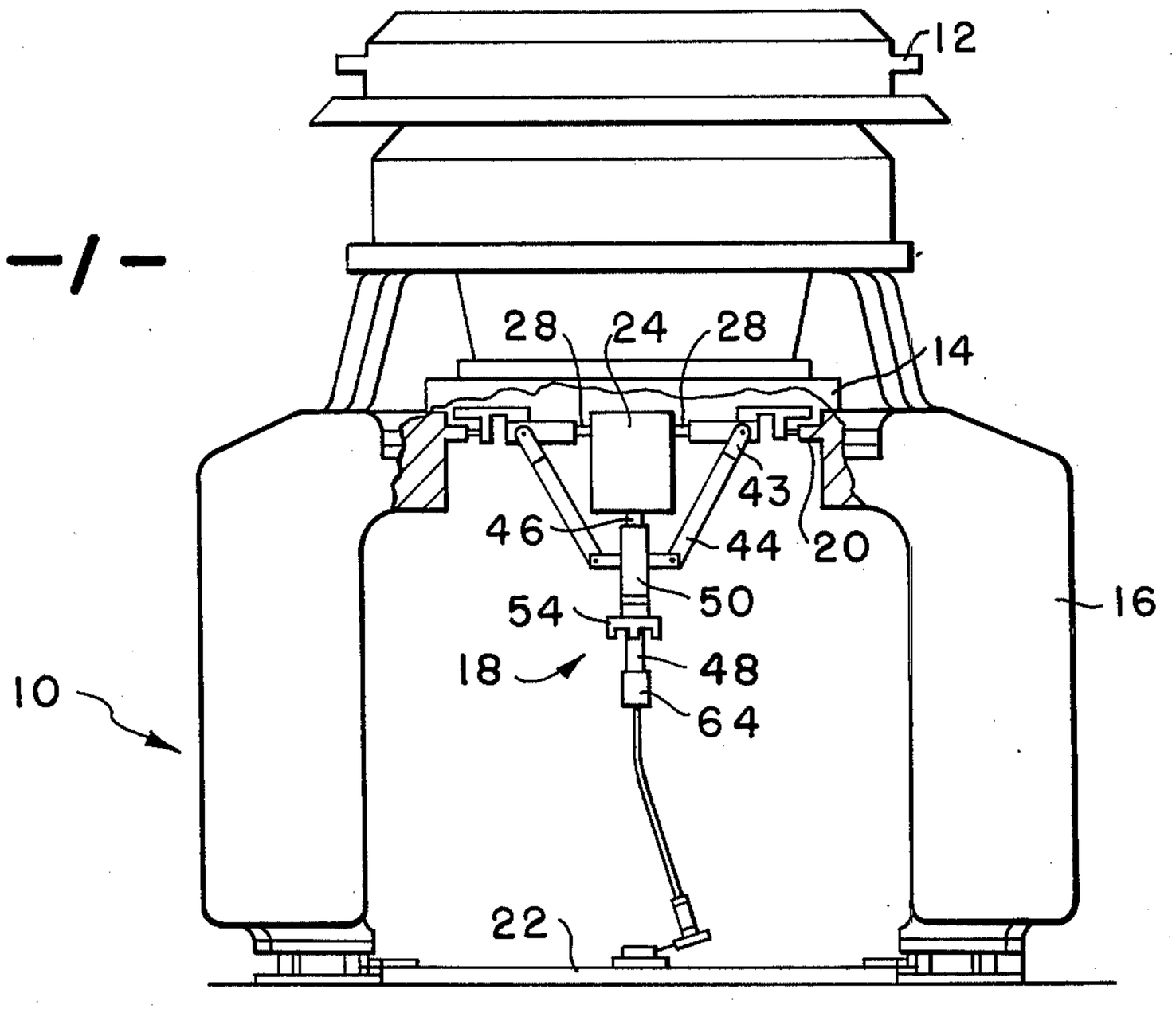


FIG.-1-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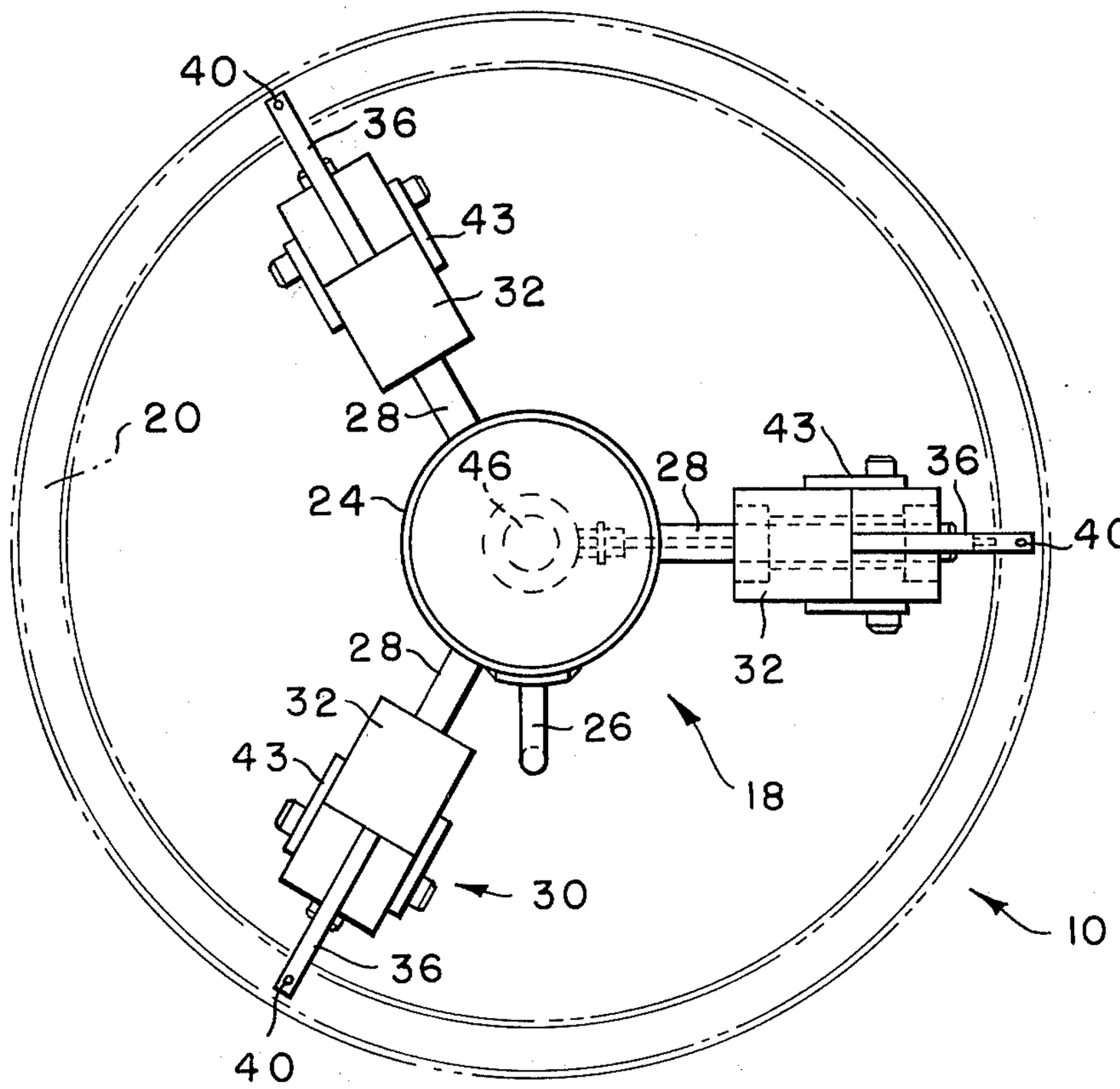
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FIG.-2-

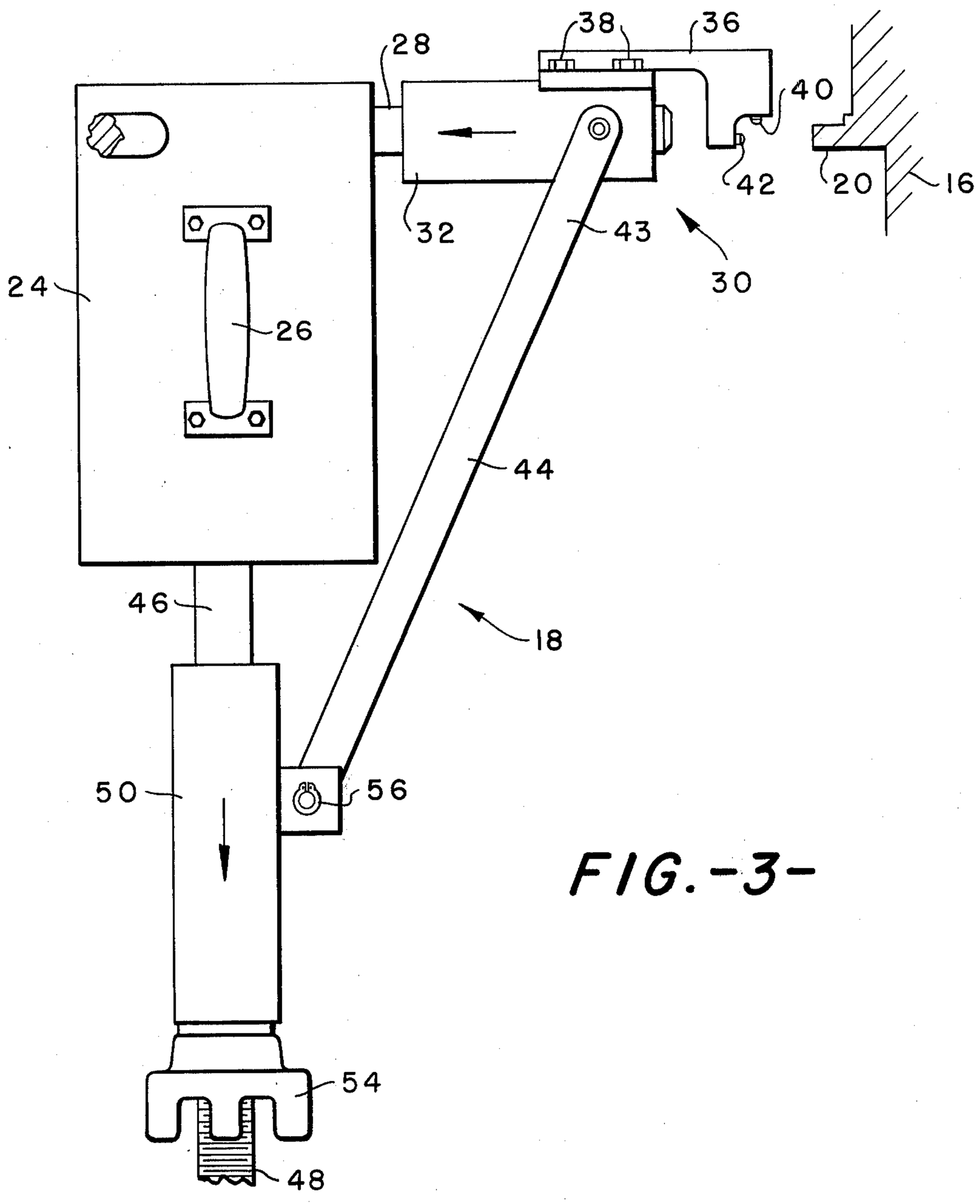

FIG.-3-

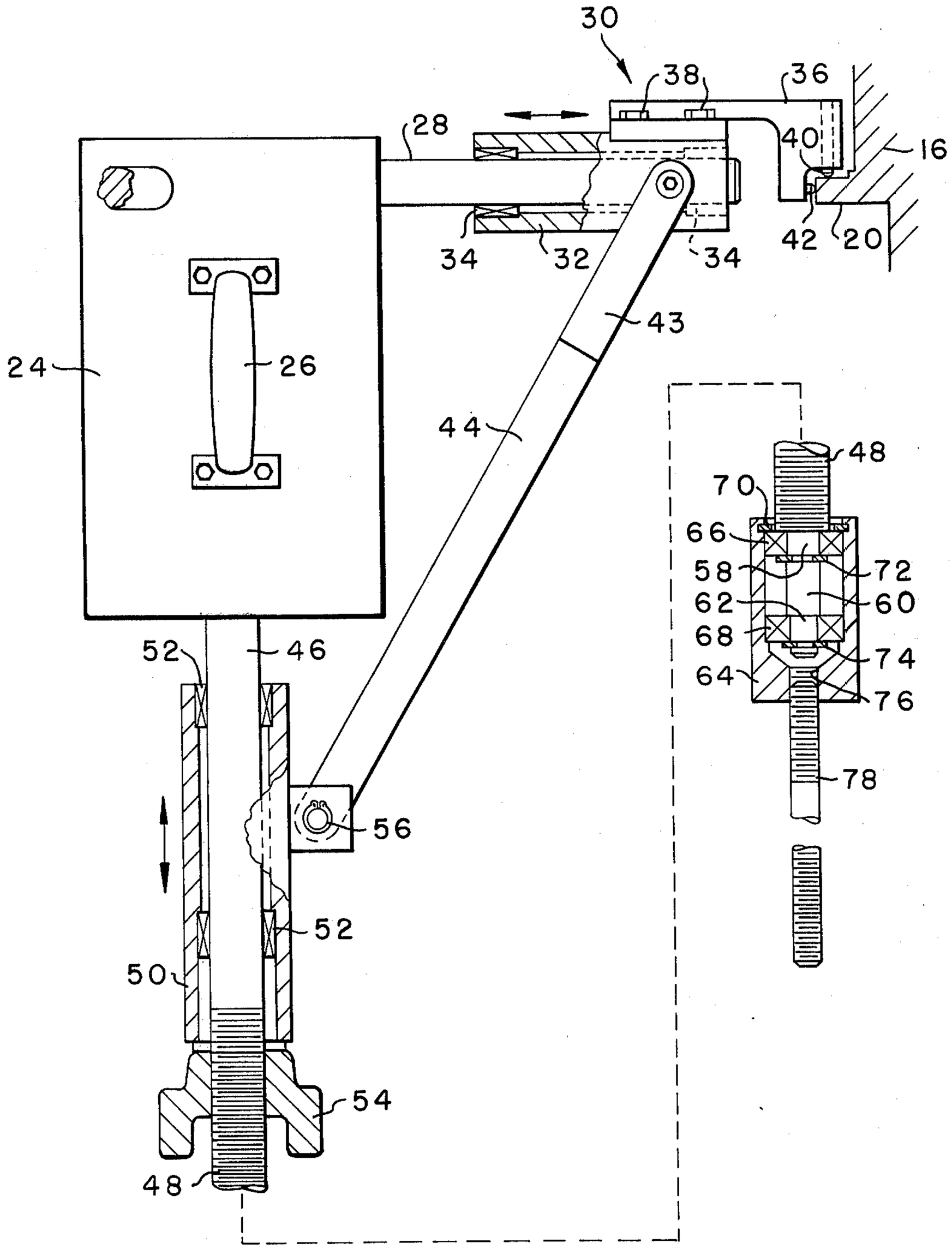
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FIG. -4-

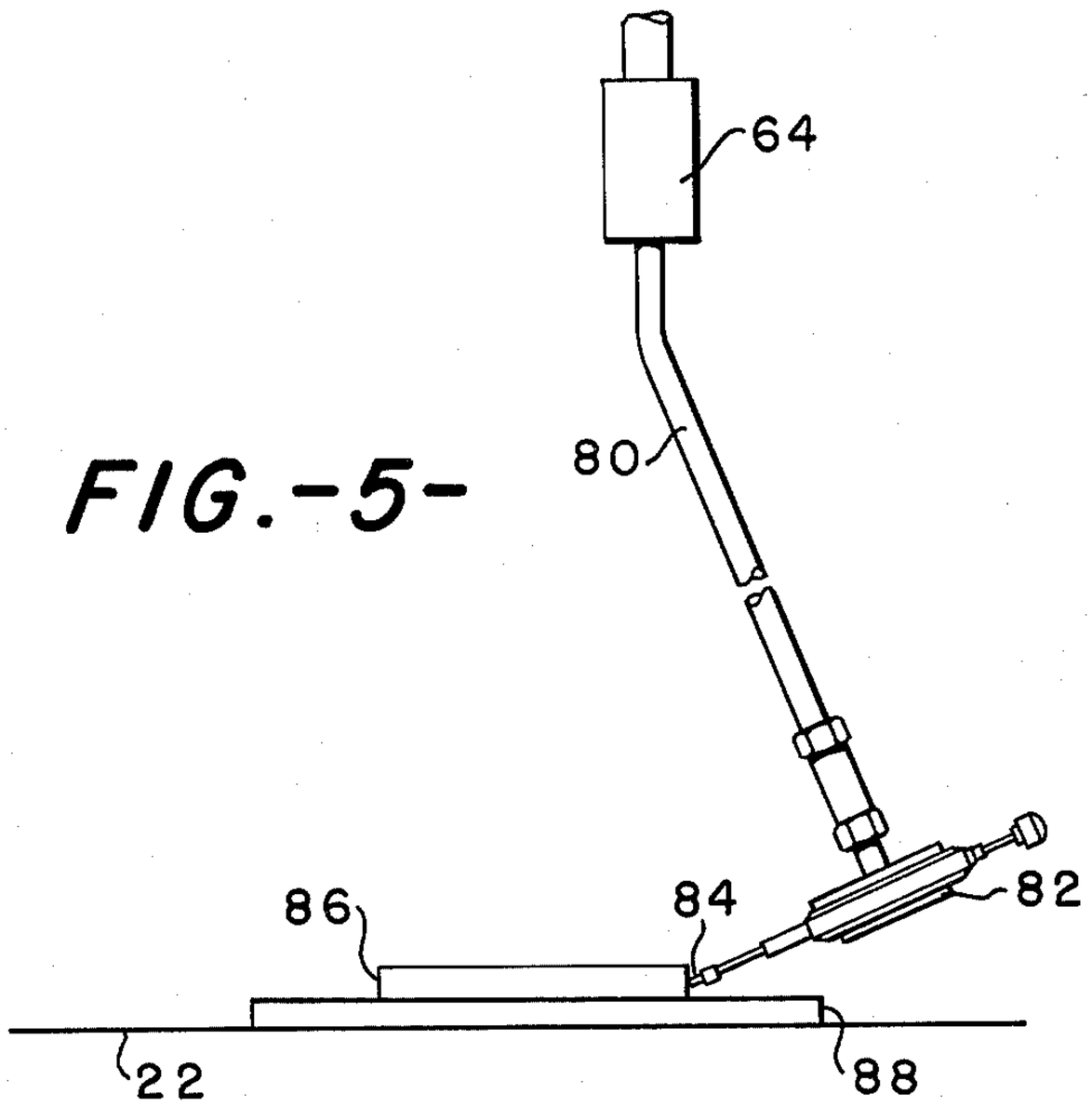

FIG.-5-

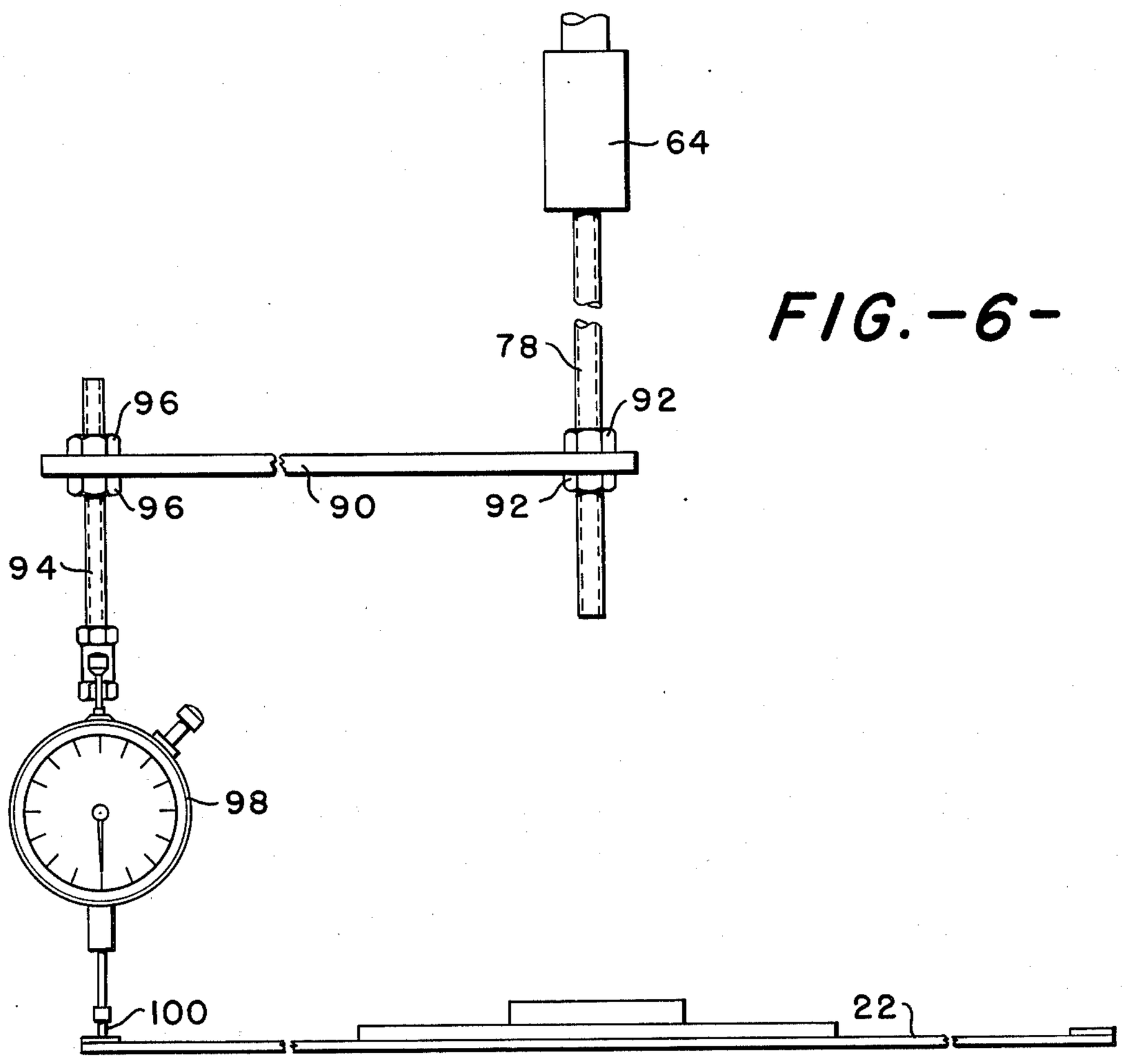

FIG.-6-

CIRCULAR KNITTING MACHINE DEVICE

It is an object of the invention to provide a centering and truing device which is simple in construction, accurate and can be readily installed and removed with a minimum effort.

Other objects and advantages of the invention will become readily apparent as the specification proceeds to describe the invention, in which:

FIG. **1** is a front elevation partially schematic view of a circular knitting machine incorporating the novel centering and truing device;

FIG. **2** is a top view of the cylinder ledge showing the centering and truing device in position;

FIG. **3** is a partial elevation of the top portion of the centering and truing device;

FIG. **4** is a view similar to FIG. **3** showing portions thereof sectioned to more clearly show the details thereof;

FIG. **5** shows the use of the centering and truing device for center location of the large roll take-up baseplate; and

FIG. **6** illustrates the use of the centering and truing device to determine the levelness of the large roll take-up baseplate.

Looking now to FIG. **1**, there is shown a circular knitting machine **10** which is supplied with yarn from an off-side creel (not shown). The machine **10** has conventional components such as yarn guide ring **12** and a rotating needle cylinder **14** all supported on the frame **16**. The centering and truing device **18** is located in the cylinder suspended on the cylinder ledge **20** to check the center location of the baseplate or track **22**.

As discussed briefly before, the centering and truing device is used to check the center of the baseplate **22** with respect to the centerline of the machine cylinder and the levelness of such plate. The baseplate **22** supports the large roll take-up mechanism shown and disclosed in U.S. Pat. No. 3,985,001.

Looking now to FIGS **2–4**, the centering and truing device **18** is shown in more detail. The device **18** is basically constructed around a hollow cylindrical support member **24** to which is attached a hollow handle **26** for transportation and three rod or shaft members **28** to support the slider members **30**. Each of the slider members **30** consists of a slider sleeve **32** slidably mounted on rod **28** by suitable bearings **34** and a L-shaped bracket member **36** mounted to the sleeve **32** by screws **38**. Bracket member **36** has an adjustable set screw **40** adapted to contact the top of cylinder ledge **20** and an adjustable set screw **42** to contact the edge of the cylinder edge **20**. Pivotally secured to each of the slider sleeves **32** is a U-shaped bracket **43** to which a lever arm **44** is connected by any suitable means, such as by welding.

Projecting upwardly into the cylindrical support member **24** is shaft member **46** which has a threaded bottom portion **48**. Telescoped over the shaft **46** is a sleeve member **50** slidably mounted thereon, and substantially perpendicular to slider members **30** by suitable bearings **52**, and held in position by nut **54** screwed into the threaded portion **48** of the shaft member **46**. The free ends of each of the lever arms **44** is pivotally secured to the outside of the sleeve member **50** to **56**. The threaded lower portion **48** of the shaft member **46** has reduced diameter portions **58**, **60** and **62** at the end thereof to rotably support a cup member **64** at the end

thereof through the bearings **66** and **68** and snap rings **70**, **72** and **74**.

The lower end of the cup member **64** has a tapped opening **76** therein in which is screwed the rod **78** shown in detail in FIG. **6** or the rod **80** shown in detail in FIG. **5**. The rod **80** is angled away from the center of the baseplate and has a dial indicator **82** connected at the bottom thereof with its sensing indicator **84** in contact with a centerline plug **86** in the adjustable center pivot housing **88** of the large roll take-up baseplate. In FIG. **6** an arm **90** is secured to the rod **78** by means of cooperating nuts **92**. At the other end of the arm **90** is a rod **94** secured to the arm **90** by suitable nut **96**. Secured at the bottom end of the rod **94** is an indicator **98** which has its pointer **100** in contact with the periphery of the baseplate **22**.

OPERATION

FIGS. **1**, **2** and **4–6** show the centering and truing device in operative position in the knitting machine. For the sake of this explanation, it is assumed that the centering and truing device **18** has been calibrated but it should be kept in mind that the device **18** should be calibrated if abused during operation or after about 50 usages or upon the expiration of 1 year.

As pointed out briefly before, it is intended to provide an apparatus to accurately position the large roll take-up baseplate with respect to the knitting machine cylinder. This means that the center of the baseplate **22** must be positioned under the center of the rotation of the knitting machine cylinder and the plane of the baseplate **22** must be parallel to the plane of rotation of the knitting machine cylinder. To accomplish this end, large roll take-up carriage, along with the primary and secondary spreaders with supports therefore, are removed. Then all the dust, dirt, lint, broken needles, etc. is removed from the knitting machine cylinder ledge **20** in preparation for the use of the centering and truing device **18**.

In the use of the apparatus **18**, the nut **54** is loosened and screwed to allow the sleeve member **50** to be slid downwardly to contract the sliders **32**. Then the device is lifted up into the knitting machine and two of the slider sleeves **32** correctly positioned so that the set screws **40** and **42** abut the cylinder ledge **20**. Then the nut **54** is tightened until the third slider sleeve **32** is slid horizontally until its set screws are correctly positioned on the cylinder ledge **20**. When using the device **18** to check the center location of the baseplate **22**, a centerline plug **86** is used in conjunction with the rod **80** shown in FIG. **5**. Then the cup **64** is rotated one complete rotation and the readings on the indicator needle of the indicator **82** are noted. These readings will indicate how far or close the center of the baseplate **22** is to the centerline of the device **18** which in turn establishes the baseplate center to the knitting machine center if the device **18** is accurately positioned on the cylinder ledge **20**.

If it is desired to determine the levelness of the baseplate **22**, which in fact is whether it is parallel to the knitting machine cylinder, the arrangement shown in FIG. **6** is used. As with the arrangement of FIG. **5**, the cup **64** is rotated one revolution as the needle readings of the indicator **98** are noted to provide necessary information for adjustment of the baseplate.

As hereinabove described, an apparatus is provided which will allow easy and efficient checking of the

relative positions of the baseplate **22** of a large roll take-up device to the cylinder of a circular knitting machine.

Although the preferred embodiment of the invention has been described, it is contemplated that any changes may be made without departing from the scope or spirit of the invention and it is desired that the invention be limited only by the claims.

I claim:

1. Apparatus to measure the centering and levelness of the baseplate of a take-up mechanism for a circular knitting machine comprising: a support member, a first slider member mounted on said support member, at least three slider members located substantially perpendicular to said first slider member, means pivotally securing said first slider member to each of said three slider members, means connected to said support member to adjustably secure said first slider member in position on said support member, a second support member rotably supported on said support member and indicator means connected to said second support member and adapted to contact the baseplate of a take-up mechanism for a circular knitting machine.

2. The apparatus of claim **1** wherein each of said three slider members has a pair of set screws thereon substantially perpendicular to one another.

3. On a circular knitting machine having a rotating needle cylinder and a take-up mechanism baseplate, said needle cylinder having an inwardly directed ledge the improvement being an apparatus to measure the centering and levelness of the baseplate relative to the needle cylinder, the improvement comprising: a first support member, a first slider member mounted on said first support member, at least three slider members located substantially perpendicular to said slider member and in contact with said cylinder ledge, means pivotally connecting said slider member to each of said three slider members, means securing said slider member in position on said first support member, a second support member rotably supported on said first support member and indicator means connected to said second support member and in contact with said baseplate to provide a reading when said second support member is rotated.

4. The improvement of claim **3** wherein each of said three slider members has a first set screw in contact with said cylinder ledge.

5. The improvement of claim **4** wherein each of said three slider members has a second set screw in contact with said cylinder ledge and substantially perpendicular to said first set screw.

* * * * *

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 4,069,688 Dated January 24, 1978

Inventor(s) John R. Sanders

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 65, delete the word "to", second occurrence, and substitute therefor --at--.

Signed and Sealed this

Sixth Day of *June 1978*

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

DONALD W. BANNER
Commissioner of Patents and Trademarks